

Section 2.1- Scatterplots

Scatterplots

Notes:

- Shows the relationship between 2 _____ variables
- Can show categorical variables by _____
- Individuals are represented by the _____ on the plot
- **Explanatory Variable:**
 - On the _____ axis
 - Explains or causes the change in the _____ variable
- **Response Variable:**
 - On the _____ axis
 - Measures the outcome of an experiment or study

Interpreting Scatterplots:

Overall pattern

- Get a sense of what the data/plot looks like in general, then comment on the following 3 things

(1) Form

Linear:

Curved:

(2) Direction

Negative Association

Positive Association

(1) Strength-

- Use the following words (or combinations of these):

-
-
-
-

Examples:

Strong

Moderate

Weak

Scattered

Examples: Describing Scatterplots

1) 2) 3)

* You try the next 4 examples

* Now complete worksheet 2.1

Worksheet 2.1- ANSWERS

① Chart:

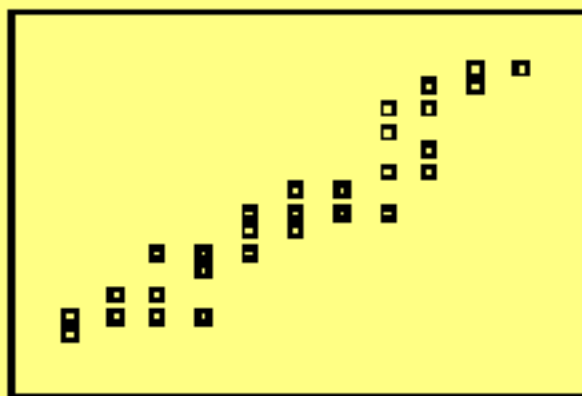
	Strong	Mod	Weak
-	C	D	F
+	E	A	B

- ②
- | | |
|-------------------|-------------------|
| a) +, strong | f) -, mod. |
| b) +, mod. strong | g) +, strong |
| c) Scattered | h) +, mod. strong |
| d) +, mod. | |
| e) -, strong | |

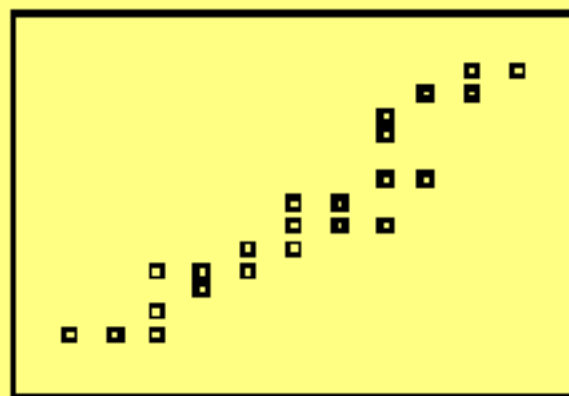
Section 2.2- Correlation

WHAT PLOT HAS THE STRONGER RELATIONSHIP? BY HOW MUCH??

A



B



Correlation:

Symbol: **r**

Definition: **measure the direction and strength of the linear relationship between X and Y variables.**

Formula: **$r =$**

- Grouping/ Ungrouping
- How to make scatterplots on the calculator
- Deleting a point from a list
- Using the program CORR

UNGROUPING:

- go to 2nd MEM (the + sign)
- go down to **GROUP**, hit **ENTER**
- go over to **UNGROUP**
- select the group you want
- hit **ENTER**- the lists come up

SCATTERPLOTS

- go to **STATPLOT** (2nd, then Y=)
- go into plot 1, turn it on, and select a scatterplot (the 1st type)
- put your x-list and y-list in
- hit **ZOOM 9** (zoom stat)
- hit trace to trace the points.

TO FIND THE CORRELATION:

- go to **PRGM**
- go to the program **CORR** and hit **ENTER**
- then hit **ENTER** again
- it prompts you for the x-list- find the x-list in your menu of lists
- hit **ENTER**
- do the same for your y-list
- hit **ENTER**
- the correlation is "r"

CORRELATION COEFFICIENT: the last few notes....

- * $-1 < r < 1$**
- * close to -1 or 1 = strong, linear**
close to 0 = weak linear (could be strong curved)
- * r has NO units -> standardized values**
- * non-resistant**
- * doesn't matter which variable is x or y. You can switch them- correlation is still the same**
- * p.130 in book- good examples**

COEFFICIENT OF DETERMINATION:

What is it?

How do we interpret it?